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ABSTRACT

This paper is a proposal for developing a manual that provides preschool teachers with prescriptive guidelines for teaching verbal and conceptual skills with modeling. Several studies are cited to indicate the power and versatility of observational and learning (modeling) procedures in promoting the acquisition, generalization, and retention of a wide variety of conceptual responses in young children. Based on this research, a Modeling-Imitation Instructional Model is constructed which anticipates the flow of the type and sequence of decisions that need to be made when using modeling to teach concepts and associations. A flow chart details this process. The lesson format and an outline of the proposed manual are presented, along with a sample lesson. (SB)

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OUTLINE AND TIMETABLE FOR THE DEVELOPMENT OF AN OBSERVATIONAL LEARNING MANUAL

by

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OUTLINE AND TIMETABLE FOR THE DEVELOPMENT OF AN OBSERVATIONAL LEARNING MANUAL

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Although the paradigmatic effect of parent's and teacher's behavior has long been assumed, there has been little systematic study of such modeling variables until recently. Educators have long held particular interest in student acquisition of cognitive behavior. However, because of the paucity of social learning research dealing with cognitive or linguistic behavior, there is little prescription for teacher modeling behavior. At present, modeling procedures are loosely and intuitively applied by the practictioner. Little attention has been directed at quantifying imitative responding by the child and hence precise specification of the variable parameters is precluded. At present, then, teachers lack a formal feedback mechanism by which to alter their modeling performance. Such alterations presently remain the product of each teacher's experience and are not generally drawn from a common body of knowledge. Clearly there exists a need to provide the teacher with more prescriptive guidelines by which to define his role as model. This level of detail in role specification can be provided through use of an observational

learning manual based on a systematic program of research.

To meet this need for acquiring greater specificity concerning the role of modeling in cognitive behavior, Zimmerman and Rosenthal and associates have undertaken during the previous two years an intensive study of the modeling process. This body of research has been directed at a variety of age groups. Rosenthal, Zimmerman and Durning (1970) have shown that abstract classes of question formulation could be vicariously induced and generalized from the performance of an adult model by disadvantaged Mexican American children. The power of the social learning procedure was evident from the rapidity of learning (less than 10 minutes of training) and from the similar magnitude of effects observed in the four distinct question classes. This study also revealed that only a small fraction of the imitative responding could be attributable to exact copying. The previous conceptions of the imitation process as literal reproduction or slavish copying clearly underestimated the potentiality of social procedures in complex situations. Rosenthal and Zimmerman (1971) replicated this study and found that instructions of varying degrees of specificity added little to the power of observational learning for inducing an abstract response. In addition, expectancy-to-succeed-set also failed to influence acquisition. Rosenthal and Zimmerman (1971) demonstrated that observational learning procedures were effective in inducing Piagetian conservation in a variety of dimensions and were effective in facilitating transfer to novel stimulus instances. In addition, the provision of a rule by the experimenter facilitated acquisition. Reinforcement to the

model failed to influence responding. The children thus trained varied in age from four to seven years and the training procedures were brief. When compared to a traditional didactic approach, modeling procedures facilitated acquisition and generalization while the didactic procedure failed to influence performance. Zimmerman and Rosenthal (1971) demonstrated the retention and delayed generalization of a rule-governed response over a seven week period. In this investigation, rule provision prior to the model's performance enhanced observational learning, generalization, and retention. In another investigation, Zimmerman and Rosenthal (1971) found that if the rule is presented contiguously (and repetitively) during the model's performance there is further enhancement of performance over rule provision before the model's performance. Further, feedback to the observer during his performance (subsequent to the model's performance) facilitated acquisition and generalization. These effects which were based on an extremely complex rule learning task were obtained with Mexican American children as well as Anglo American children. Zimmerman and Pike (1971) found that modeling procedures when coupled with reinforcement procedures significantly enhanced acquisition and transfer of question-asking behavior of second grade Mexican American children when compared to reinforcement procedures alone or control group responding. This study was carried out over an extended period of time and utilized a small group instructional arrangement. This study demonstrated that experimental social learning procedures and the conclusions derived therefrom, can be directly translated to a protypic instructional situation without necessitating theoretical alterations or special equipment.

The above studies offer extensive information concerning the power and versatility of observational learning procedures in promoting the acquisition, the generalization, both immediate and after delay, and the retention of a wide variety of conceptual responses in young children. The final study in particular demonstrated the instructional utility of these experimental findings.

While many questions concerning the use of modeling imitation instructional procedures remain get unanswered, (some of the questions will be addressed in this author's continuing research), it is possible to extrapolate some general principles and procedures that have generally proven effective and to organize these procedures into a general pedagogical model. It is to this and that the proposed observational learning manual is directed.

The Modeling-Imitation Instructional Model

It is possible to conceptualize a modeling-imitation instructional model on the basis of the type and sequencing of the decisions that potentially need to be made. Figure 1 represents an initial attempt to visually depict this decision-making model. This model is tentative at this point in time and will be systematically modified on the basis of the proposed program of research.

The first frame in the model involves pretesting the children on the intellectual skill in question. If the child fails to display consistent knowledge of the skill, he will be exposed to a modeling treatment. The

model will initially perform on the pretest items. After the model has performed, the child observer will be given the opportunity to imitate on the same item. If he fails to properly imitate, he will be again exposed to model two more times. If he still fails to imitate, the subject's motivation will be ascertained, if he appears unmotivated, xtrinsic reinforcers will be added. If he appears to be adequately motivated, then the task will be broken down into smaller units and these units will be demonstrated first singly and then in combination to the observer.

If the observer can imitate the model, then one of two distinct courses of action must be decided upon depending on whether the task involves rule or associative learning. If the task requires the induction of a superordinate rule, then after imitation, a new item is presented without demonstration to determine if the observer can generalize the skill; if not, the observer will be recycled and will be exposed to the model correctly performing on the missed item. If the observer correctly generalizes the skill, the teacher can then present new items without model prompting to other members of the group if there is more than one observer. When all child observers can respond without prompting to one item, training can cease until retesting. If there is only one observer, then training can be terminated after he correctly responds to five generalization items in sequence. Finally after delay, the pretest items can be reintroduced to assess retention. Errors at any point in the sequence will automatically recycle the person and he will be exposed to a model's demonstration on the missed items.

If instead the task involves associative learning (such as learning to verbally label common objects), then if the observer correctly imitates the first label, he is recycled and presented a second label, if he correctly imitates that label also, he will be presented the first label without modeling prompts. If he correctly remembers the first label he will have the next label demonstrated for him; if he fails to recall the first label, he will have that label modeled for him for a second time. If there is more than one observer and more than three items have been presented, then previous items will be presented to other members of the teaching group in order to assess recall without model prompting. If any observers incorrectly recalled any previous item, correct response on that item will be demonstrated for him. If all previous items are correctly answered, then a new item will be presented to the same observer if there is only one observer, or a different observer if there are several. If all items have been presented and all observers (if there is more than one) have gotten each label correct without direct prompting, then training can cease until retention testing. Finally after delay, the list of items can be reintroduced to assess recall. Errors at any point in the sequence will automatically recycle the person and he will be exposed to the model's demonstration on the missed items.

The above flow diagram is presented as a first attempt to comprehensively depict the decision making structure of a social learning teaching model. It is presented for the benefit of experts receiving this proposal. It is not considered appropriate as a teaching device for the population of adults expected to eventually use the proposed manual. Instead the relevant

aspects of this model vis-a-vis each lesson will be extracted and presented in a format which is easily understandable by the adults involved. This initial format that we propose is presented below:

Lesson Format

OBJECTIVE — An operational definition of the skill or concept that the lesson is designed to teach.

MATERIALS — A description of the materials which can be used to teach the lesson.

PROCEDURES — A description of how the adult can teach the lesson using modeling-imitation procedures. There are three major subsections:

1. Pretesting. This section involves exanining the initial skills of children specified by the objective. If there is a child who has already learned the skill, he can be used as a model.
2. Modeling-imitation-acquisition. This section involves the model's demonstration of the skill to the child(ren) observer(s) and the subsequent imitation performance of the observer(s) on the same task. If correct imitation is obtained, then unprompted responses to a new item (in the case of rule learning) or to a previously presented item (in the case of associative learning) will provide evidence of acquisition.

3. Retention. The observers unprompted performance on previously exposed items after delay.

EVALUATION — A description of how to assess and record each child observer's skills on each objective.

Presented below is a sample lesson of a selected concept to illustrate how it will be organized according to the above format. We anticipate using pictures in conjunction with the verbal explanation whenever it facilitates understanding how to teach that particular objective. However we have yet to experiment with these visual cues and thus only the verbal explanation is presented below.

Sample Lesson

OBJECTIVE — Learning to respond to and use the words larger and smaller.

MATERIALS — Any two sizes of a particular objects, such as two balls.

PROCEDURE — Pretest: (1) Select any two sizes of a particular object such as two balls, and present these to the child. (2) Ask the child to point to the larger or smaller one. (3) Select two sizes of a different object and continue questioning the child, alternating your direction to point to the larger or smaller object. (4) If the child correctly responds to five presentations, he can be marked as knowing the concept. If he consistently misses, he should be retained for modeling training.

Modeling-imitation-acquisition: (1) Keep creating each item (pair of objects) as just described. (2) Ask the child to let the model (the adult or another child who knows the concept) take turns. The model demonstrates on each item first, then the child has an opportunity to imitate with the same pair of objects. (3) If the child can imitate correctly, then he is given a new pair of objects to respond to without the model's help. (4) The object of the game is to get five items correct without the model's help. (5) After the first observer gets the game, present to other children in the group to assess each child's acquisition or imitation.

Retention. Using the four pairs of the objects, test each child individually to assess his recall.

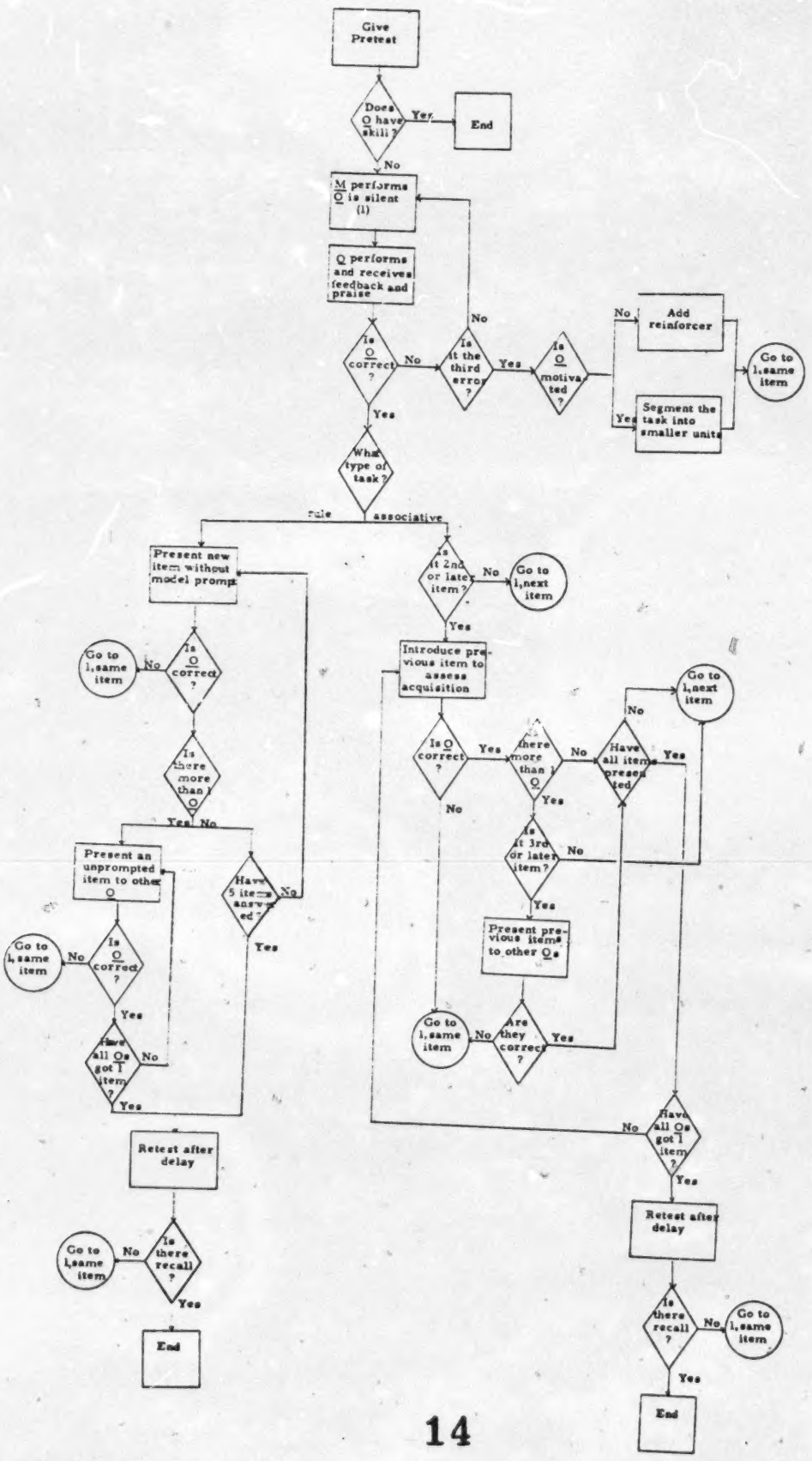
EVALUATION

Each child who can get five items correct without error or prompting should be scored as having the skill in the appropriate space. If the child can imitate the model, but cannot respond without help from the model, he should be scored only under imitation.

A very simple diagnostic record chart can be used to index each child's acquisition such as that presented below.

DIAGNOSTIC CHART FOR INTELLECTUAL SKILLS

OBJECTIVE	PRETEST	IMITATION	ACQUISITION	RETENTION	DATE OF ACQUISITION
1. large-small 2. fast-slow 3. tall-short etc.	✓	✓	✓	✓	Oct. 4, 1972


Give Pretest
Does O have skill?
Yes
End
No
M performs O is silent (1)
O performs and receives feedback and praise
Is O correct?
No
Is it the third error?
Yes
Is O motivated?
No
Add reinforcer
Yes
Segment the task into smaller units
Go to 1, same item
Yes
What type of task?
rule
associative
Present new item without model prompt
Is it 2nd or later item?
No
Go to 1, next item
Yes
Introduce previous item to assess acquisition
Go to 1, same item
No
Is O correct?
Yes
Is there more than 1 O
Yes
No
Present an unprompted item to other O
Have 5 items answered?
No
Yes
Go to 1, same item
No
Is O correct?
Yes
Have all Os got 1 item?
No
Yes
Is O correct?
Yes
No
Is there more than 1 O
Yes
No
Is it 3rd or later item?
No
Yes
Present previous items to other Os
Go to 1, same item
No
Are they correct?
Yes
Have all items presented
Yes
No
Go to 1, next item
Have all Os got 1 item?
No
Yes
Retest after delay
Go to 1, same item
No
Is there recall?
Yes
End
Retest after delay
Is there recall?
No
Go to 1, same item
Yes
End

Scope and Timetable for Manual

The manual will consist of thirty lessons parallel in format to that presented above. The major focus of the manual is on teaching verbal and conceptual skills to preschool children. The skills are presented in outline form below. The objectives for each lesson will be drawn from this list and these objectives will constitute the basis for each lesson.

A preliminary rough draft version of the observational learning manual will be submitted to NPECE by November 30, 1973. A completed draft of the manual will be submitted to NPECE by November 30, 1974.

The first part of the manual will be an introductory section describing the general procedures to follow and considerations involved in a modeling-imitation instructional model. This will be followed by the thirty lessons. A diagnostic guide will be included in the Appendix as a sample record form.

This then is the general format that we propose to follow. It is a model predicated upon considerable research, and our perusal of teaching materials for preschool children has failed to uncover anything like the proposed manual. We feel it will make a significant contribution to the language and conceptual development of young children and will in the final analysis constitute one of the few data-based teaching instruments for children in this age group.

Outline for Manual

I. Acquisition of Verbal Skills

A. Labeling of common objects

1. parts of body
2. household items
3. zoo animals

etc.

B. Using singular and plural morphemes

C. Using sentence tense

1. past tense
2. present tense
3. future tense

D. Using prepositions

1. directional prepositions (e.g., in-out, through, etc.)
2. relational prepositions (e.g., behind, inside, on top of)

E. Using adjectives and adverbs

1. bipolar adjectives or adverbs (e.g., large or small, dark or light, fast or slow, near or far, early or late, etc.)
2. comparatives (e.g., larger or smaller, etc.)
3. superlatives (e.g., largest or smallest, etc.)

F. Labeling paired objects as same or different

G. Using affirmation and negation rules (e.g., "That is a ball ; "That is not a chair.")

I. Acquisition of Verbal Skills (Cont.)

H. Using conjunctive and alternate denial rules (e.g., "Pick up the red and white ball," "Pick up the red but not striped ball.

I. Using an exclusive disjunctive rule (e.g., "Pick up either the red or white ball (but not both)."

J. Using the conditional rule (e.g.,"If the light is red, do not go."

K. Asking or responding to questions

1. acquiring the interogative word order and inflection

2. acquiring specific types of questions (e.g., why, when, where, etc.)

II. Acquiring Conceptual or Reasoning Skills

A. Learning to sort objects

1. sorting on the basis of color

2. sorting on the basis of size

3. sorting on the basis of function

4. etc.

B. Learning the letters of the alphabet

1. recognizing letters

2. identifying letters

3. recognizing own name

C. Learning numerals

1. recognizing numerals

2. identifying numerals

II. Acquiring Conceptual or Reasoning Skills (Cont.)

D. Learning to count to twelve

1. using similar objects

2. using dissimilar objects

E. Learning ordination skills (first - fourth, last)

1. using similar objects

2. using dissimilar objects

F. Comparing sets of objects (up to six objects)

1. using similar objects

2. using dissimilar objects

G. Learning to seriate objects

H. Learning to add and subtract up to ten

I. Learning to conserve

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